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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/662,163

09/12/2003

Bryan H. Suits

84,294

1540

26384

7590

10/05/2004

NAVAL RESEARCH LABORATORY
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EXAMINER

SHRIVASTAV, BRIJ B

ART UNIT

PAPER NUMBER

2859

DATE MAILED: 10/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/662,163

Applicant(s)

SUITS ET AL.

Examiner

Brij B Shrivastav

Art Unit

2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, 11, 12, 14, 20-24, 26 and 32 is/are rejected.
- 7) ☒ Claim(s) 3, 5-9, 13, 15-19, 25 and 27-31 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1, 2, 4, 10, 11, 12, 14, 20-24, 26 and 32 are rejected under 35 USC.102(e) as being anticipated by Arvin et al (US 6,496,713).

As regards to claim 1 and 23, Arvin et al teach a magnetic field gradiometer and method for detecting a material of interest in a detecting region outside the detector and analyzing a sample by magnetic resonance; the gradiometer including a transmitter for generating an output signal at a selected frequency, a receiver for detecting the signal and a switch to change transmitter into receiver mode and vice versa (figures 2-4 and 6 ' numerals 18, 24, 26 and 28; figure 6 does not show the switch between the sensor and applied field coil; however, a switch is implied to function the equipment properly). Further, Arvin et al teach the probe comprising a gradiometer coil array including a first surface coil and a second surface coil wound in an opposite sense, said probe has a first side and an opposite side, and wherein the first and second surface coils are configured asymmetrically such that the probe projects a magnetic field in the outside detecting region adjacent to the first side and is self-shielded on the second side of the

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probe to thereby detect the material of interest while shielding the detector from outside RF sources (figures 1-3 and 5-7; column 8-10, lines 20-67, 1-14, 60-67, 1-34; column 11 and 12, lines 7-67 and 1-32).

As regards to claims 2, 4, 10, 24, 26 and 32, Avrin et al further teach coil optimization for efficiency and the first and second coils with different windings are placed coaxially (figures 4, 5 and 8, numerals 26, 28, 30 152, 154 and 155).

As regards to claim 11, Avris et al teach a first surface coil and a second surface coil wound in an opposite sense, wherein the first and second surface coils are configured asymmetrically such that the coil array projects a magnetic field in a detecting region out the first side and is self-shielded on the second, opposing side of the coil array thereby detect the material of interest while shielding the detector from outside RF sources (figures 1-3 and 5-7; column 8-10, lines 20-67, 1-14, 60-67, 1-34; column 11 and 12, lines 7-67 and 1-32).

As regards to claims 12, 14 and 20-22 Avrin et al further teach coil optimization for efficiency and the first and second coils with different windings are placed coaxially (figures 4, 5 and 8, numerals 26, 28, 30 152, 154 and 155).

Allowable Subject Matter

2. Claims 3, 5-9, 13, 15-19, 25, 27-31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

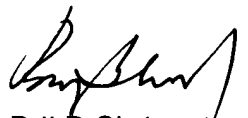
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brij B Shrivastav whose telephone number is 571-272-2250. The examiner can normally be reached on 7 AM to 4 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego F. F. Gutierrez can be reached on 571-272-2245. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

September 25, 2004


Brij B Shrivastav
Examiner
Art Unit 2859
